

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2004/004342

International filing date (day/month/year)
26.03.2004

Priority date (day/month/year)
28.03.2003

International Patent Classification (IPC) or both national classification and IPC
G01R29/12

Applicant
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1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

10/551112
International application No.
PCT/JP2004/004342

~~JO20 REGISTRATION~~ 28 SEP 2004

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/004342

Box No. II Priority

1. ☒ The following document has not been furnished:

- ☒ copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	5,6,7
	No: Claims	1-4,8,9
Inventive step (IS)	Yes: Claims	
	No: Claims	1-9
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

PCT/JP2004/004342

Re Item V**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Reference is made to the following documents:**

- D1: RIEHL P.S.: "Microsystems for Electrostatic Sensing" DISSERTATION, [Online] November 2002 (2002-11), page 1-8,32-40,79-84, XP002289224 UNIVERSITY OF CALIFORNIA, BERKELEY Retrieved from the Internet: URL:http://www-bsac.eecs.berkeley.edu/publications/search/send_publication_pdf2client.php?pubID=1040564878 [retrieved on 2004-07-20]
- D2: EP-A-1 003 044 (XEROX CORP) 24 May 2000 (2000-05-24)

Remark: The application does not meet the requirements of Article 6 PCT, because claims 1, 2, 5, 7 and 9 are not clear.

The terms "... shutter can **assume** a ... state" (claims 1, 2, 5, 7 and 9), "the electrode is exposed ... **wider**" respectively "... **narrower**" (claims 1, 2 and 9) and "electrode ... **formed in plural parts**" (claim 2) are vague and not clear.

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 9 is not new in the sense of Article 33(2) PCT.**2.1. The document D1 discloses with regard to claim 1 (the references in parentheses applying to this document):**

- A potential sensor comprising first and second detection electrodes (Fig.5.1 and corresponding cross-section of Fig.5.3, electrodes at V_{i+} and V_{i-})
- opposed to a potential-measured object of which a potential is to be measured (Fig.5.1, potential indicated by E),
- and a movable shutter so positioned between said detection electrodes and said potential-measured object with gaps thereto (Fig.5.1, "Shutter" and Fig.5.3, light-grey structure);
- wherein said movable shutter can assume a first state and a second state (Fig.5.1, array at shutter and Fig.5.3: shutter moves in x-direction),

- said first detection electrode is exposed to the potential-measured object wider when said movable shutter assumes the first state than when said movable shutter assumes the second state, and said second detection electrode is exposed to the potential-measured object narrower when said movable shutter assumes the first state than when said movable shutter assumes the second state (Fig.5.1 and Fig.5.3, moving of shutter in x-direction; and p.81, last 2 lines).

2.2. The document D1 discloses with regard to claim 9 (the references in parentheses applying to this document):

- A potential measuring method comprising:
- a step of positioning a potential sensor including first and second electrodes (Fig.5.1 and corresponding cross-section of Fig.5.3, electrodes at V_{i+} and V_{i-})
- and a movable shutter for selectively masking said two electrodes (Fig.5.1, "Shutter" and Fig.5.3, light-grey structure),
- in which said movable shutter can assume a first state and a second state (Fig.5.1, array at shutter and Fig.5.3: shutter moves in x-direction),
- said first electrode is exposed wider when said movable shutter assumes the first state than when said movable shutter assumes the second state, and said second electrode is exposed narrower when said movable shutter assumes the first state than when said movable shutter assumes the second state (Fig.5.1 and Fig.5.3, moving of shutter in x-direction; and p.81, last 2 lines),
- and a potential-measured object in such a manner that said movable shutter is positioned between said potential sensor and said potential-measured object (Fig.5.1, potential indicated by E); and
- a step of switching said movable shutter between said first and said second state (p.80, par.5.2.1, lines 1 to 4),
- and measuring a potential of said potential-measured object based on a change in an electrostatic capacitance generated between said first and second electrodes and said potential-measured object (abstract p.1, first paragraph).

3. Dependent claims 2 to 8 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2) PCT) and/or inventive step (Article 33(3) PCT), the reasons being as follows:

3.1. The additional features of **claims 2** (s. Fig.5.3), **3** (s. Fig.3.5), **4** (p.80, par.5.2.1:

"microresonators" utilized as shutters) **and 8** (p.1, par.1) are already **disclosed in D1 (Article 33(2) PCT)**.

3.2. The additional features of claims 5 to 7 are related to special implementations of the invention disclosed in the application concerning the use of an alternative driver component. However the skilled person is aware of the fact, that there are several ways of building the driver component (see e.g. D2, par.[0011]) and that one quite compact way is by the use of magnetically driven microstructures. This leads directly to additional features like the ones in **claims 5 to 7, thus they cannot be considered as involving an inventive step as required und Article 33(3) PCT**.